

## Arizona's Common Core Summary of Changes – Mathematics – Sixth Grade

In order to help facilitate the transition to Arizona's Common Core Standards and the PARCC assessment, this document provides the changes in standards (from 2008 to 2010) and in assessments (from AIMS to PARCC). Descriptions of the document's columns are as follows.

**Addressed by AIMS (2013 and 2014)** – The Performance Objectives identified in the two columns below this heading are to be embedded in instruction and are assessed by AIMS in 2013 and 2014.

- **Removed from Specifically Being Tested in 2015** – Some of the more “granular” POs from the 2008 Standard have been incorporated into the more “global” standards of Arizona's Common Core Standards by becoming examples or prerequisite knowledge for teaching the concept. This column notes the Performance Objectives that have been removed as being tested as a specific objective. The Performance Objectives identified in this column will still be assessed by AIMS in 2013 and 2014.
- **Moved to a Different Grade Level** – Performance Objectives listed in this column will move to a different grade level for Arizona's Common Core Standards and the PARCC Assessment as indicated at the end of the PO. The Performance Objectives identified in this column will still be assessed by AIMS in 2013 and 2014 at the current grade level.

**Addressed by PARCC (2015)** – The Performance Objectives identified in the two columns below this heading are included in the 2010 Standards and are expected to be addressed by the PARCC assessment.

- **Moved from Another Grade Level** – For alignment to Arizona's Common Core Standards and to be addressed by the PARCC Assessment, the Performance Objectives identified in this column are moved into the current grade level from another grade level as indicated at the beginning of the PO.
- **New Standards** – As noted by an asterisk in the Mathematics Crosswalks, the standards listed in this column from Arizona's Common Core Standards are new and will not match any of the POs from the 2008 Standard. These new standards are expected to be addressed by the PARCC assessment.

## Arizona's Common Core Summary of Changes – Mathematics – Sixth Grade

GRADE 6			
Addressed by AIMS (2013 and 2014)		Addressed by PARCC (2015)	
Removed from Specifically Being Tested in 2015	Moved to a Different Grade Level	Moved from Another Grade Level	New Standards
M06-S1C3-02 (2008) Make estimates appropriate to a given situation and verify the reasonableness of the results.	M06-S1C1-06 (2008) Express the inverse relationships between exponents and roots for perfect squares and cubes. MOVED to 8.EE.2	M05-S1C1-05 (2008) MOVED TO 6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."</i>	6.NS.6a Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$ , and that 0 is its own opposite.
M06-S2C1-04 (2008) Compare two or more sets of data by identifying trends.	M06-S1C2-01 (2008) Apply and interpret the concepts of addition and subtraction with integers using models. MOVED to 7.NS.1	M05-S1C1-05 (2008) MOVED TO 6.RP.2 Understand the concept of a unit rate $a/b$ associated with a ratio $a:b$ with $b \neq 0$ , and use rate language in the context of a ratio relationship. <i>For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is <math>\frac{3}{4}</math> cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."</i> (Expectations for unit rates in this grade are limited to non-complex fractions.)	6.NS.7d Understand ordering and absolute value of rational numbers. d. Distinguish comparisons of absolute value from statements about order. <i>For example, recognize that an account balance less than <math>-30</math> dollars represents a debt greater than 30 dollars.</i>

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M06-S2C3-01 (2008) Build and explore tree diagrams where items repeat.	M06-S1C2-05 (2008) Provide a mathematical argument to explain operations with two or more fractions or decimals MOVED to 5.NF.4b	M08-S3C4-02 (2008) MOVED TO 6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i> c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	6.SP.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. <i>For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.</i>

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M06-S2C3-02 (2008) Explore counting problems with Venn diagrams using three attributes.	M06-S1C3-01 (2008) Use benchmarks as meaningful points of comparison for rational numbers. MOVED to 8.NS.2	M07-S1C1-02 (2008) and M08-S1C2-01 MOVED TO 6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. M05-S1C1-06 (2008) MOVED TO 6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	6.SP.5d Summarize numerical data sets in relation to their context, such as by: d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

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M06-S2C4-01 (2008) Investigate properties of vertex-edge graphs <ul style="list-style-type: none"> <li>Hamilton paths,</li> <li>Hamilton circuits, and</li> <li>shortest route.</li> </ul>	M06-S2C2-01 (2008) Use data collected from multiple trials of a single event to form a conjecture about the theoretical probability. MOVED to 7.SP.7a	M05-S1C1-06 (2008) MOVED TO 6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	
M06-S2C4-02 (2008) Solve problems related to Hamilton paths and circuits.	M06-S2C2-02 Use theoretical probability to <ul style="list-style-type: none"> <li>predict experimental outcomes,</li> <li>compare the outcome of the experiment to the prediction, and</li> <li>replicate the experiment and compare results.</li> </ul> MOVED to 7.SP.7a and 7.SP.7b	M07-S1C1-03 (2008) and M08-S1C.01 (2008) MOVED TO 6.NS.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. M05-S1C1-06 (2008) MOVED TO 6.NS.7b Understand ordering and absolute value of rational numbers. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. <i>For example, write <math>-3^{\circ}\text{C} &gt; -7^{\circ}\text{C}</math> to express the fact that <math>-3^{\circ}\text{C}</math> is warmer than <math>-7^{\circ}\text{C}</math>.</i>	
M06-S3C1-01 (2008) Recognize, describe, create, and analyze a numerical sequence involving fractions and decimals using all four basic operations.	M06-S2C2-03 (2008) Determine all possible outcomes (sample space) of a given situation using a systematic approach. MOVED to 7.SP.8b	07-S3C3-02 (2008) MOVED TO 6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.	

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M06-S4C4-01 (2008) Determine the appropriate unit of measure for a given context and the appropriate tool to measure to the needed precision (including length, capacity, angles, time, and mass).	M06-S3C4-01 (2008) Determine a pattern to predict missing values on a line graph or scatterplot. MOVED to 5.G.2	M07-S3C3-02(2008) and M08-S3C3-02 (2008) MOVED TO 6.EE.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	
M06-S5C2-09 (2008) Solve simple logic problems, including conditional statements, and justify solution methods and reasoning.	M06-S4C1-01 (2008) Define $\pi$ (pi) as the ratio between the circumference and diameter of a circle and explain the relationship among the diameter, radius, and circumference. MOVED to 7.G.4	M07-S3C3-02(2008) MOVED TO 6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	
	M06-S4C1-02 (2008) Solve problems using properties of supplementary, complementary, and vertical angles. MOVED to 7.G.5	M08-S3C3-05 (2008) MOVED TO 6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	

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	M06-S4C2-01 (2008) Identify a simple translation or reflection and model its effect on a 2-dimensional figure on a coordinate plane using all four quadrants. MOVED to 8.G.2 and 8.G.3	M07-S3C3-04 (2008) MOVED TO 6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	
	M06-S4C4-03 (2008) Estimate the measure of objects using a scale drawing or map. MOVED to 7.G.1	M07-S4C4-02 (2008) and M07-S5C1-01 (2008) MOVED TO 6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	
		M05-S4C1-04 (2008) MOVED TO 6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	

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		NOTE: There is an increased expectation at sixth grade to apply the properties of operations to generate equivalent expressions. Please see crosswalk for detailed information.	